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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,689	11/06/2003	Vinay Mehta	FDN-2815	8995
7590 10/20/2008 GAF MATERIALS CORPORATION Attn: William J. Davis, Esq. Legal Department, Building No. 10 1361 Alps Road Wayne, NJ 07470				
EXAMINER				
COLE, ELIZABETH M				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
10/20/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/702,689

Applicant(s)

MEHTA ET AL.

Examiner

Elizabeth M. Cole

Art Unit

1794

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 9-36 is/are pending in the application.
- 4a) Of the above claim(s) 19-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 9-18 and 30-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

1. Claims 1-5, 9-18,30-36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification as originally filed does not provide support for the limitation that the adhesion promoter is added to one of the breathable thermoplastic film, coated laminate or glass fiber based substrate, (claim 1), or the polyurethane film, (claim 18). The specification teaches adding the adhesion promoter to the polyolefin film, not to other components of the underlayment.
2. Claims 1-5, 9-17, 30-32, 34-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. In claim 1, there is no antecedent basis for the "coated laminate" in line 11. Claim 1 recites a "coatable laminate" in line 3, but does not recite a coated laminate. A similar problem is found in claim 2. In claim 34, sections a and b, the limitations reciting maleic anhydride grafted PP and titanate or zirconate coupling agents at 5% by weight of PP renders the claim indefinite. It is not clear what PP refers to either in claim 1 or in claim 34. Regarding claim 35, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).
4. The amendment filed 7/17/08 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment

shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the amendment changes 172 nanograms to 17.164 kilograms.

Applicant is required to cancel the new matter in the reply to this Office Action.

5.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-2, 4-5, 10, 12-14, 17, 18, 30,32-33,36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and Krueger, U.S. Patent No. 5,691,034. Albertone discloses a breathable film which may comprise polyether, polyurethane, polyether ester, polyether amide, polyvinyl alcohol polymers and copolymers. See col. 4, lines 37-56. The breathable film is bonded to a substrate such as a polyolefin nonwoven fabric. See col. 5, lines 45-col. 7, lines 3. A tie layer of copolymers comprising ethylene vinyl acetate can be used to facilitate bonding between the film and nonwoven substrate layer. With regard to claim 17, claim 17 recites a statement of intended use and does not structurally further limit the structure set forth in claim 1. The laminated film is useful in roofing. The thickness of the film encompasses the claimed range. See 20-60 um. While Albertone does not particularly state the claimed MVTR, since Albertone teaches

employing a permeable film, and teaches that the permeability of the film can be controlled by controlling various factors such as the thickness of the layers and/or the chain length of the polymer, (see col. 12, lines 28-44), therefore, Albertone teaches that the MVTR is a result effective variable and therefore, it would have been obvious to one of ordinary skill in the art to have selected the desired MVTR through the process of routine experimentation which had the optimum MVTR. Albertone differs from the claimed invention because while Albertone teaches that the substrate can be any woven or nonwoven material, it does not specifically teach that the substrate is a glass fiber fabric. WO '668 teaches at page 8, fourth full paragraph, that substrates which comprise mineral fibers are equivalent to substrates which comprise organic fibers for use as the fibrous substrate in forming roof underlayments. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a glass fiber substrate as the fibrous substrate in Albertone, motivated by the teaching of WO '668 that such substrates were recognized in the art as equivalents for this purpose.

8. Albertone does not disclose adding either a silane agent or a maleic anhydride grated polypropylene to the underlayment as an adhesion promoter. Krueger teaches at col. 6, lines 55-66, that tie layers in structures such as Albertone may further comprise adhesion promoters such as silanes and maleic anhydride modified polymers. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the adhesion promoting agents of Krueger in the tie layers of Albertone in order to improve and facilitate the bonding of the layers.

9. With regard to the newly added limitation that the glass fiber based substrate is "directly adhered" to a coatable laminate or a breathable film, it is noted that in Albertone, the combination of the tie layer and the breathable film combine to make a coatable laminate, (i.e., a laminate that could be or is able to be coated), and therefore Albertone meets this limitation. Further, it is noted that dependent claims 13-15 recite that a tie layer is positioned between the substrate and the breathable thermoplastic film. Therefore, it is reasonable to presume that by "directly adhered" Applicant did not intend to exclude bonding layers or tie layers as taught by Albertone from the structure being claimed in claim 1. Finally, it is noted that the claims employ open claim language and do not preclude the presence of additional layers.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent no. 6,645,336 in view of WO 9637668 and Krueger as set forth above, and further in view of Kuhnel et al, U.S. Patent No. 4,511,619. Albertone discloses a breathable laminate which comprises a film layer and a fabric substrate layer. Albertone does not teach disposing the film on both sides of the fabric substrate layer. Kuhnel teaches that in forming roofing materials that the film can be disposed on both sides of the fabric so that the fabric can strengthen the film. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have disposed film layers on both sides of the substrate in Albertone, in order to allow the substrate to fully strength the film layers.

11. Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and Krueger as

set forth above, and further in view of Kirchberger et al, U.S. Patent No. 6,300,257.

Albertone discloses a breathable laminate as set forth above. Albertone does not disclose that the polymer layer or the tie layer comprises methyl methacrylate.

Kirchberger teaches that methyl methacrylate can be added to layers of breathable roofing materials in order to improve the interlaminar bonding strength of layers which contain ethylene copolymers. See col. 3, lines 9-17. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added methyl methacrylate to the tie layers and film layers of Albertone, motivated by the expectation that this would further enhance the interlaminar bonding strength of the material.

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone in view of WO 9637668 and Krueger as applied to claims above, and further in view of EP 1,245,620. Albertone teaches a roofing underlayment as set forth above. Albertone does not disclose incorporating additives into the breathable layer. EP '620 discloses a breathable film material comprising a polyolefin resin such as polypropylene which is laminated to a substrate such as a polyolefin nonwoven fabric. See paragraph 0001. The material is suitable for use in forming waterproofing sheets for roofs. The film may further comprise additives such as alumina to impart heat and flame resistance. See paragraph 0009. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added flame retardants such as those taught in EP '620 to the underlayment of Albertone, motivated by the

expectation that this would impart flame retardant properties to the underlayment of Albertone.

13. Claims 1-2, 4-5, 10, 12-14, 17, 18, 31, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and George et al, U.S. Patent No. 4,282,283. Albertone discloses a breathable film which may comprise polyether, polyurethane, polyether ester, polyether amide, polyvinyl alcohol polymers and copolymers. See col. 4, lines 37-56. The breathable film is bonded to a substrate such as a polyolefin nonwoven fabric. See col. 5, lines 45-col. 7, lines 3. A tie layer of copolymers comprising ethylene vinyl acetate can optionally be used to facilitate bonding between the film and nonwoven substrate layer. With regard to claim 17, claim 17 recites a statement of intended use and does not structurally further limit the structure set forth in claim 1. The laminated film is useful in roofing. The thickness of the film encompasses the claimed range. See 20-60 μm . While Albertone does not particularly state the claimed MVTR, since Albertone teaches employing a permeable film, and teaches that the permeability of the film can be controlled by controlling various factors such as the thickness of the layers and/or the chain length of the polymer, (see col. 12, lines 28-44), therefore, Albertone teaches that the MVTR is a result effective variable and therefore, it would have been obvious to one of ordinary skill in the art to have selected the desired MVTR through the process of routine experimentation which had the optimum MVTR. Albertone differs from the claimed invention because while Albertone teaches that the substrate can be any woven or nonwoven material, it does not specifically teach that the substrate is a glass

fiber fabric. WO '668 teaches at page 8, fourth full paragraph, that substrates which comprise mineral fibers are equivalent to substrates which comprise organic fibers for use as the fibrous substrate in forming roof underlayments. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed a glass fiber substrate as the fibrous substrate in Albertone, motivated by the teaching of WO '668 that such substrates were recognized in the art as equivalents for this purpose.

14. Albertone does not disclose adding a titanate coupling agent to the underlayment as an adhesion promoter. George et al, U.S. Patent No. 4,282,283 teaches in example 1 that titanate coupling agents may be added to compositions in order to facilitate the bonding of a polymeric material and a fiberglass fabric. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the adhesion promoting agents of George in the tie layers or the breathable layers of Albertone in order to improve and facilitate the bonding of the layers.

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent no. 6,645,336 in view of WO 9637668 and George as set forth above, and further in view of Kuhnel et al, U.S. Patent No. 4,511,619. Albertone discloses a breathable laminate which comprises a film layer and a fabric substrate layer. Albertone does not teach disposing the film on both sides of the fabric substrate layer. Kuhnel teaches that in forming roofing materials that the film can be disposed on both sides of the fabric so that the fabric can strengthen the film. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to

have disposed film layers on both sides of the substrate in Albertone, in order to allow the substrate to fully strength the film layers.

16. Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and George as set forth above, and further in view of Kirchberger et al, U.S. Patent No. 6,300,257. Albertone discloses a breathable laminate as set forth above. Albertone does not disclose that the polymer layer or the tie layer comprises methyl methacrylate. Kirchberger teaches that methyl methacrylate can be added to layers of breathable roofing materials in order to improve the interlaminar bonding strength of layers which contain ethylene copolymers. See col. 3, lines 9-17. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have added methyl methacrylate to the tie layers and film layers of Albertone, motivated by the expectation that this would further enhance the interlaminar bonding strength of the material.

17. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone in view of WO 9637668 and George as applied to claims above, and further in view of EP 1,245,620. Albertone teaches a roofing underlayment as set forth above. Albertone does not disclose incorporating additives into the breathable layer. EP '620 discloses a breathable film material comprising a polyolefin resin such as polypropylene which is laminated to a substrate such as a polyolefin nonwoven fabric. See paragraph 0001. The material is suitable for use in forming waterproofing sheets for roofs. The film may further comprise additives such as alumina to impart heat and

flame resistance. See paragraph 0009. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have added flame retardants such as those taught in EP '620 to the underlayment of Albertone, motivated by the expectation that this would impart flame retardant properties to the underlayment of Albertone.

18. Claims 1,4,5,9-15, 32,34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Albertone et al, U.S. Patent No. 6,645,336 in view of WO 9637668 and Krueger, U.S. Patent No. 5,691,034 as applied to claims above, and further in view of EP 104555. Albertone and WO '668 do not teach employing silane coupling agents in the fibrous mat. EP '555 teaches at pp 10-12 that glass fiber mats for use in roofing can further comprise silane coupling agents such as those claimed in order to facilitate bonding. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have employed silane coupling agents as taught in EP '555 in the nonwoven mat of Albertone as modified by WO '668 in order to improve bonding.

19. Applicant's arguments filed 7/17/08 have been fully considered but they are not persuasive.

20. Applicant's argues that WO '668 does not teach how to adhere the breathable thermoplastic film to the glass fiber as claimed in claim 1. However, WO '668 is relied on for the teaching of equivalency between mineral fibers and polymeric fibers as the fibrous material for roofing underlayments. Further, the person of ordinary skill in the art

would have known that the polymeric layer could have been bonded to the glass fiber nonwoven by conventional means. The instant claims do not recite a particular bond strength, etc., that would distinguish the claimed invention from the prior art structures in terms of bond strength or other parameters.

Applicant argues that there is a problem with using a tie layer as taught in Albertone and Krueger. However, initially, it is noted that the instant claims do not preclude the presence of a tie layer as shown by the dependent claims 13-16 which positively recite that there is a tie layer between the film and the nonwoven. Further, it is noted that the claimed recite that either the breathable film or a "coatable laminate" is directly adhered to the substrate and comprises the adhesion improving component, the combination of a tie layer as taught by Albertone with the breathable film would correspond to the claimed coatable laminate and would meet the structure as claimed. Applicant argues that WO '668 does not teach how to adhere the breathable film to the glass fiber layer. However, Albertone already teaches how to make the breathable film and teaches that the fabric layer can be "any fabric". WO '668 is relied on to show the equivalence of mineral fibers and synthetic fibers for this purpose. Krueger teaches incorporating an adhesion promoting agent into a polymeric layer in order to promote adhesion of the layer to fiber glass materials.

21. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

The examiner's supervisor Rena Dye may be reached at (571) 272-3186.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (571) 273-8300.

/Elizabeth M. Cole/
Primary Examiner, Art Unit 1794

e.m.c